Kite flying (figs. 67–71 in book) was highly successful. An electric motor and an effective brake were employed. Collapsible box kites, easy to land and requiring little space to store, were commonly used, but were found of untested stability and sank too readily if they fell into the sea. The landing field was but 8 meters long. An extra pulley on a gaff was found helpful in starting and concluding flights. In stormy weather the turbulence caused by the ship threw the kites about and made much trouble. Sometimes kites were sent up without instruments, to get the wind at least. The limited coal often meant limited kite flights. None were possible when sails were set, for the lee whirl throws a kite into the water. The numerous flights in the stormy westerlies were possible because of the large wire used, which, however, could not be lifted high.

The lighter trade winds permitted a finer wire: 1,800 meters of 0.7-millimeter, 4,000 meters of 0.8-millimeter, 6,000 meters of 0.9-millimeter, and an outrun of 100 meters of 0.8-millimeter wire. The supporting surface of the instrument kite and one or two others was 8 square meters. These large kites proved better than 5 square meter kites in strong winds, for the latter lie on a side during hard inpulling. The formation of kinks by the pulley system caused the loss of three instrument kites. Frequent renewal of the top 1 or 2 kilometers of wire is advised. The loss of meteorographs necessitated the use of balloon meteorographs on the last three profiles. These were slung on wires 5 meters long attached 130 to 140 meters back of the leading kite, far enough for the kite to be free of the ship's eddies. Owing to pendulation of the instrument, the sun when high affected the temperature indications. Good results were obtained in two ascents after sunset. Flights could be made when the wind relative to the ship was 6 m/s or more.

Of the 217 kite flights, 150 were in the Tropics. Frequently no ascents could be made in the westerlies because of storms. On Profiles III and V ice frequently formed on the wires, holding the kites down. The maximum heights attained were in Profile IX in the equatorial zone. On the whole, the so-called calm belt was a fruitful field for kite flights. There were 33 between 4° N. and 4° S., and of these 14 exceeded 3,000 meters and 4 went over 4,000 meters. The average altitude reached in the 217 kite flights was 2,200 meters and the maximum, 4,870 meters.

CONCLUSION

The foregoing summary of the work of the *Meteor* expedition tells a story of heroic labors in the interest of science. Such a large volume of data was collected with the utmost scientific care that the final results of study can not fail to be highly illuminating. First, there will be a notable contribution to the climatology of the Atlantic. Altogether, an unbroken record of pressure, air temperature, humidity, wind direction, wind velocity, and precipitation was kept throughout the 26 months' voyage. Hourly values for cloudiness, state of the sea, and water temperatures were also obtained for the entire period at sea. The extensive evaporation measurements and the considerable series of radiation observations also deserve special mention. Second, there will be the most extensive contribution ever made by a single expedition to knowledge of the temperature, humidity, and circulation of the atmosphere. These aerological observations were made at all seasons and in large number and cover in a fairly uniform way the entire width of the South Atlantic Ocean near the Antartic Continent to the Equator and the portion of the North Atlantic which is between South America and Africa. Tropical wind variability was found to be greater than supposed; winds at all heights vary considerably, and there is no antitrade in the old sense.

There could be no better memorial to Doctor Merz than the monumental results that will come from this remarkably successful expedition, planned by him and begun under his direction, and carried through with competence and indefatigable zeal.

EDITORS OF THE MONTHLY WEATHER REVIEW

By A. J. HENRY

The first issue of the MONTHLY WEATHER REVIEW was that of October, 1872, rather than January, 1873, as frequently hitherto given. The first issue was reprinted in the annual report of the Chief Signal Officer for 1873, page 981. This issue contained less than 1,500 words and a single chart, viz, one showing the paths of cyclonic storms for that month. The late Prof. Thompson B. Maury with the assistance of Observer-Sergt. Henry Calver,[1] was responsible for the first issue. Mr. Calver, who joined the Signal Service in 1871, suggested to General Myer in August of that year the issue of a weekly review of the weather for the benefit of the press and commercial organizations. He was commissioned to prepare and issue such a report and doubtless the idea of a monthly review grew out of Calver's weekly report for we find that Professor Maury, with whom Calver served, to have been responsible for the first issue.

Strange as it may seem there is no official record of the responsible editors of the REVIEW during the régime of the military weather service; it was the custom at that time for the official who had served as "indications" officer to have editorial charge of the MONTHLY WEATHER REVIEW during the month immediately following his tour of duty on the indications work as it was then called.

It is not now possible to give a categorical list of the early editors more than to say that the work was divided among the civilian professors, Abbe and Maury, and the following-named Army officers who had been detailed for service in the Signal Service of the Army, viz, Craig, Dunwoody, Greely (later Chief Signal Officer), Story, Powell, Allen, Thompson Glassford, Finley and possibly others, including the late Prof. Henry Allen Hazen, who took up the work in September, 1887.

Effective in July, 1891, when the weather service was transferred to the Department of Agriculture and the present Weather Bureau was created, the editorship of the REVIEW was vested in a board of editors composed of Mr. Horace E. Smith, chief clerk of the Bureau and Profs. Russell, Hazen, and Marvin together with Edward B. Garriott, who served as the actual editor during the life of the board.

In July, 1893, Prof. Cleveland Abbe was named as editor and it is to him more than any other person that the publication reached its high standing as a meteorological journal.

In July, 1909, a radical change was made in the scope and form of the REVIEW. The United States was divided into 12 major subdivisions on the basis of the

[1] Mr. Calver, a successful patent attorney still practicing his profession in Washington, D. C., has the distinction of being the sole survivor of the Signal Service central office of 1871.—ED.

water partings of the larger river systems, and the printing of the daily precipitation for some 5000 stations was undertaken. Inasmuch as charge of the rainfall stations was vested in the climatological division, the chief editorship was given to the late Prof. Frank H. Bigelow, who was assisted by 12 editors, drawn from the field service, one for each district. On Professor Bigelow's resignation from the Federal Weather Service in 1910, his successor in charge of the climatological division, P. C. Day, assumed the editorship.

The new form of the REVIEW was abandoned in December 1913, and the publication with some minor modifications reverted to the form which it has held from 1893 to 1909. Professor Abbe resumed his former position as editor and continued as such until he was forced by ill health to surrender it to his son Cleveland Abbe, jr., in July, 1915.

The tabulation below presents in convenient form the succession of editors up to the present.

Periods	Names
October to December, 1872	Thompson B. Maury.
January, 1873, to July, 1891	C. Abbe and others.
July, 1891, to July, 1893	Editorial board consisting of H. E. Smith and Profs. Russell, Hazen, and Marvin with E. B. Garriott as actual editor.
August, 1893, to July, 1909	C. Abbe.
July, 1909, to July, 1910	F. H. Bigelow and 12 district editors.
August, 1910, to December, 1913.	P. C. Day and others.
January, 1914, to June, 1915	C. Abbe.
July, 1915, to June, 1918	C. Abbe, jr.
July, 1918, to May, 1919	H. H. Kimball, acting.
June, 1919, to April, 1921	Charles F. Brooks.
May, 1921	Alfred J. Henry.

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NOTES, ABSTRACTS, AND REVIEWS

The Stratosphere over North India.—Ascents of sounding balloons carrying Dines meteorographs carried out from the Upper Air Observatory, Agra, during the last two and a half years have yielded interesting information regarding the height and temperature of the base of the stratosphere over northern India and their remarkable seasonal variations. A brief summary of the results may be of interest.

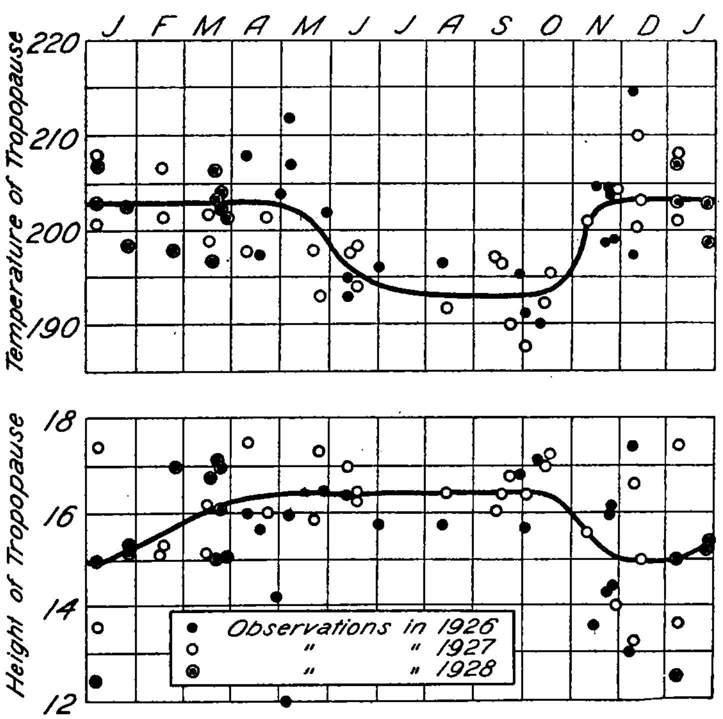

FIGURE 1

All the three types of transition from the troposphere to stratosphere classified by W. H. Dines, namely, Type I. When the stratosphere commences with an inversion; Type II. When the stratosphere begins with an abrupt transition to a temperature gradient below 2° C. per kilometer without inversion; and Type III when the decrease of lapse-rate takes place gradually; are met with. In addition, a fourth composite type with I above II or III is common between the months November to April.

During the period April, 1926, to March, 1928, 46 records of ascents to the stratosphere are available. The mean height of the tropopause (H_c) is 15.9 geodynamic or 16.3 ordinary kilometers and the mean temperature (T_c) 199° A.

In Figure 1 are plotted the heights and temperatures of the tropopause obtained from the records of these ascents. When the transition is of the composite type, both positions of rapid changes of lapse rate are plotted. The sudden jump of temperature and height of tropopause between October and November is specially noteworthy, as it occurs more than a month and a half later than the time of withdrawal of the monsoon from north India. From the point of view of seasonal variation, we may divide the year broadly into two parts—

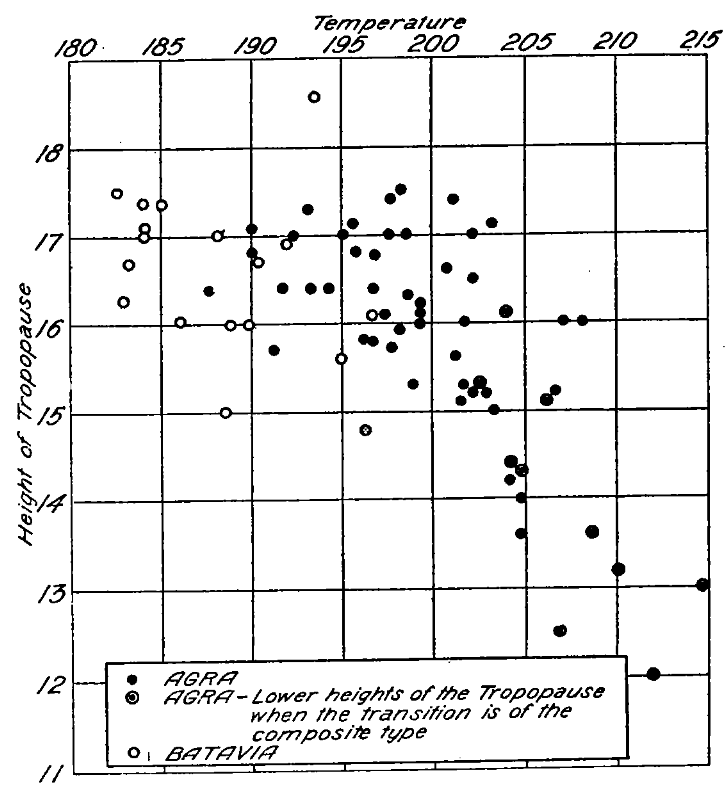

FIGURE 2

(1) *Middle of May to end of October.*—During this period, the type of tropopause is either I or II; if II, the initial sudden change of lapse rate is followed by an inversion soon after, so that there is always an inver-